

Targeting Trends

Reporting the latest news in Molecular Surgery



Deep Lumbar Neurons Control Ejaculation

Contributed by William Truitt, PhD, Department of Cell Biology, Neurobiology, and Anatomy, Neuroscience Graduate Program, University of Cincinnati, College of Medicine, Post Office Box 670521, Cincinnati, OH 45267-0521, USA.

Previously we demonstrated the existence of a spinothalamic pathway in the male rat where neural activation is specifically induced by ejaculation.¹ This pathway includes the parvocellular subparafascicular thalamic nucleus (SPFp) and projection neurons located in the lumbar spinal cord. These lumbar spinothalamic (LSt) neurons are located in lumbar segments 3 and 4 and can be identified by neural peptide content including galanin. To test the behavioral significance of these lumbar spinothalamic (LSt) neurons, effects of lesions of the LSt population on sexual behavior were investigated.²

Methodology: LSt neurons are sparsely distributed lateral to the central canal in lamina X and in the medial portion of lamina VII of L3 and L4, and are difficult to lesion by traditional methods. We thus identified a membrane target located on the LSt neurons. It was demonstrated that 93% of LSt neurons express neurokinin-1 receptor (NK-1r) and conversely 85% of NK-1r containing cells in the area surrounding the central canal at L3-4 express galanin (Fig. 1). We therefore used the targeted

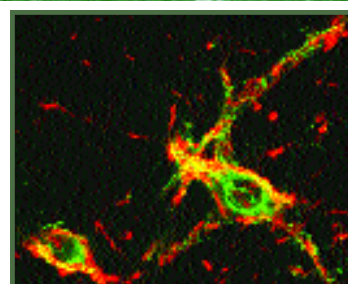


Fig. 1
Confocal image of LSt neurons demonstrating co-expression (yellow) of galanin (green) and NK-1r (red).

toxin SSP-SAP (a stable form of Substance P conjugated to Saporin) for specific ablation of LSt cells. A series of 6-8 bilateral 1- μ l SSP-SAP injections (4 ng) was infused into the L3-4 spinal cord at the location of the LSt cells in male rats. Control animals were injected with non-conjugated equimolar concentrations of SAP (Saporin). Sexual behavior was first tested 10 days after surgery, and during 5 subsequent twice-weekly tests. Following the final behavior test, animals were perfused and spinal cord tissue was immuno-processed for galanin, NK-1r, or neuronal marker N (NeuN). Labeled cells were counted in a standard area surrounding the central canal of L3-4 sections representative of the location of LSt cells.

(continued on page 6)

Inside this issue:

- Targeting Topics
Scientific References 3
- Targeting Talk
Product Q & A 5
- Targeting Tools
Featured Products 7
- Targeting Teaser
Word Quiz 8

Newsletter Highlights

- ◆ SP-SAP update (page 2)
- ◆ Custom Conjugations (page 5)
- ◆ Dermorphin-SAP and Fluorescent Conjugates (page 7)

Denise Higgins, Editor



2002 Society for Neuroscience ATS Award Winner

Congratulations to Dr. William Truitt for winning this year's award for best poster. Pictured here with Dr. Lique Coolen and Dr. Doug Lappi, he shows off his prizes: an ATS cap, mug, and polo shirt. The competition was stiff this year—57 abstracts utilized ATS products in a variety of interesting and innovative reports. For more info about the winning poster and a brief summary of some other top contenders, see the article on page 2.

